Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) An image forming apparatus including developing means for developing an electrostatic latent image on an image carrier by using a two-component developing agent containing polymerized toner and a carrier particle, said developing means comprising:

a supply/convey member in the form of a spiral screw which conveys the two—component developing agent in an axial direction while agitating the developing agent; and

a toner density sensor which is placed to oppose said supply/convey member and detects a toner density of the two-component developing agent,

wherein said toner density sensor detects a change in permeability, and

g agent containing polymerized toner and a carrier particle, said developing means comprising:

a supply/convey member in the form of a spiral screw which conveys the two-component developing agent in an axial direction while agitating the developing agent; and

a toner density sensor which is placed to oppose said supply/convey member and detects a toner density of the two-component developing agent,

wherein said toner density sensor detects a change in permeability, and

wherein said supply/convey member has a diameter of not less than 23 mm and a carrier average particle diameter Rc (μm) of said carrier particle is not more than 50 μm and not less than 20 μm.

2. (Currently amended) An image forming apparatus including developing means for developing an electrostatic latent image on an image carrier by using a two-component developing agent containing polymerized toner and a carrier particle, said developing means comprising:

a supply/convey member in the form of a spiral screw which conveys the two-component developing agent in an axial direction while agitating the developing agent; and

a toner density sensor which is placed to oppose said supply/convey member and detects a toner density of the two-component developing agent,

wherein said toner density sensor detects a change in permeability, and

wherein a carrier average particle diameter Rc (μm) of said carrier particle is not more than 50 μm and not less than 20 μm, and a relationship between ~~an~~ the carrier average particle diameter Rc (μm) ~~of the two-component developing agent~~ and a diameter Rh (mm) of said supply/convey member satisfies

$$Rh \geqq -0.0891 \times Rc + 26.008$$

3. (Original) An image forming apparatus including developing means for developing an electrostatic latent image on an image carrier by using a two-component developing agent containing polymerized toner, said developing means comprising:

a supply/convey member in the form of a spiral screw which conveys the two-component developing agent in an axial direction while agitating the developing agent; and

a toner density sensor which is placed to oppose said supply/convey member and detects a toner density of the two-component developing agent,

wherein a relationship between a carrier average particle diameter Rc (μm) of the two-component developing agent and a head diameter Rs (mm) of said toner density

sensor satisfies

$$Rs \leqq 0.13333 \times Rc + 1.3333$$

4. (Original) An apparatus according to claim 1, wherein when said supply/convey member has a screw pitch of 16 to 33 mm, the rotational speed of said supply/convey member is 3 to 10 rps.

5. (Original) An apparatus according to claim 2, wherein when said supply/convey member has a screw pitch of 16 to 33 mm, the rotational speed of said supply/convey member is 3 to 10 rps.

6. (Original) An apparatus according to claim 3, wherein when said supply/convey member has a screw pitch of 16 to 33 mm, the rotational speed of said supply/convey member is 3 to 10 rps.

7. and 8. (Canceled)

9. (Original) An apparatus according to claim 3, wherein said toner density sensor comprises a sensor which detects a change in permeability.

10. (Original) An apparatus according to claim 1, wherein a perpendicular bisector of a head surface of said toner density sensor passes through a central axis of said supply/convey member.

11. (Original) An apparatus according to claim 2, wherein a perpendicular bisector of a head surface of said toner density sensor passes through a central axis of said supply/convey member.

12. (Original) An apparatus according to claim 3, wherein a perpendicular bisector of a head surface of said toner density sensor passes through a central axis of said supply/convey member.

13. (Original) An apparatus according to claim 1, wherein said supply/convey member is in a non-contact state with respect to the head surface of said toner density sensor, and a gap therebetween is not more than 0.8 mm.

14. (Original) An apparatus according to claim 2, wherein said supply/convey member is in a non-contact state with respect to the head surface of said toner density sensor, and a gap therebetween is not more than 0.8 mm.

15. (Original) An apparatus according to claim 3, wherein said supply/convey member is in a non-contact state with respect to the head surface of said toner density sensor, and a gap therebetween is not more than 0.8 mm.

16. (New) An apparatus according to claim 3, wherein said carrier average particle diameter Rc (μm) is not more than 50 μm and not less than 20 μm.